Patent Claims

1. Wear protection coating, in particular erosion protection coating for gas turbine components, which is applied to a to-be-protected surface (14) of a flow mechanically stressed component (10), **characterized by** an at least double-layer structure, wherein a first layer (15) is applied to the to-be-protected surface (14) of the component (10) and has a material composition that is adapted to the material composition of the component (10), and wherein a second layer (16) forms an outer cover coat.

2. Wear protection coating according to Claim 1, **characterized in that** the first layer (15) of the wear protection coating (13) is comprised of the same or a similar material as the component (10).

3. Wear protection coating according to Claim 1 or 2, **characterized in that** the first layer (15) is embodied to be porous and relatively soft.

4. Wear protection coating according to one or more of Claims 1 through 3, **characterized in that** the first layer (15) has damping properties.

5. Wear protection coating according to one or more of Claims 1 through 4, **characterized in that** the first layer (15) is applied directly to the to-be-protected surface (14) of the component (10).

6. Wear protection coating according to one or more of Claims 1 through 5, **characterized in that** the component (10) is comprised of a titanium alloy and the first layer (15) of a porous titanium alloy, wherein the component (10) is embodied in particular as blade of a gas turbine.

7. Wear protection coating according to one or more of Claims 1 through 6, **characterized in that** the component (10) is comprised of a titanium-aluminum material and the first layer (15) of a porous titanium-aluminum material.

8. Wear protection coating according to one or more of Claims 1 through 7, **characterized in that** the second layer (16) of the wear protection coating is embodied to be relative hard.

9. Wear protection coating according to one or more of Claims 1 through 8, **characterized in that** said wear protection coating is embodied to be double-layered, wherein the second layer (16) is applied directly to the first layer (15).

10. Wear protection coating according to one or more of Claims 1 through 9, **characterized in that** the second layer (16) is comprised of a titanium-nitride material, an aluminum-nitride material or a titanium-aluminum-nitride material.

11. Component, in particular a gas turbine component, with a wear protection coating (13), in particular with an erosion protection coating, which is applied to a to-be-protected surface (14) of a flow mechanically stressed component (10), **characterized in that** the wear protection coating (13) has an at least double-layer structure, wherein a first layer (15) is applied to the to-be-protected surface (14) of the component (10) and has a material composition that is adapted to the material composition of the component (10), and wherein a second layer (16) forms an outer cover coat.

12. Component according to Claim 11, **characterized in that** the wear protection coating is embodied according to one or more of Claims 2 through 10.

13. Method to manufacture a wear protection coating (13), in particular an erosion protection coating for gas turbine components, which is applied to a to-be-protected surface (14) of a flow mechanically stressed component (10), **characterized by** the following steps:

a) Making available the component (10) comprised of a component material composition

b) Applying the wear protection coating (13) to the to-be-protected surface (14) of the component (10), wherein the wear protection coating (13) has an at least double-layer structure, wherein a first layer (15) is applied to the to-be-protected surface (14) of the component (10) and has a material composition that is adapted to the material composition of the component, and wherein a second layer (16) forms an outer cover coat.

14. Method according to Claim 13, **characterized in that** the first layer (15) is applied directly to the to-be-protected surface (14) of the component (10) as a porous layer.

15. Method according to Claim 13 or 14, **characterized in that** additives are incorporated into the material of the first layer (15), wherein these additives are vaporized thereby leaving behind pores (17) within the first layer (15).

16. Method according to one or more of Claims 13 through 15, **characterized in that** the first layer (15) of the wear protection coating is applied by daubing, dipping or spraying as a slip material and is then hardened preferably by stove-enameling or aluminizing.

17. Method according to one or more of Claims 13 through 15, **characterized in that** the first layer (15) of the wear protection coating is applied with the aid of targeted matter vapor beam, in particular a PVD (physical vapor deposition) matter beam.

18. Method according to one or more of Claims 13 through 17, **characterized in that** the second layer (16) is produced by evaporation coating or by nitration or by oxidizing or by aluminizing.

19. Method according to Claim 18, **characterized in that** the second layer (16) is applied directly to the first layer (15).